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The November number of the *Bulletin* contains a report of the meeting of Section A, of the American Association, by Dr. G. A. Miller; a review of Harkness and Morley's 'Introduction to the Theory of Functions,' by Professor Oskar Bolza; a review of McAulay's 'Octonions,' by Professor A. S. Hathaway; 'Theses in Mathematics at the University of Paris,' a review by Professor E. O. Lovett of five theses, presented to the Faculty of Sciences of the University of Paris, 1897-8; 'Notes'; 'New Publications.'

Bird-Lore for October contains an article by Dr. J. A. Allen on the *American Ornithologists' Union* illustrated by a full page plate showing the twenty-four founders of the Union. It contains portraits of Baird, Robert Ridgway, Elliott Coues, J. A. Allen, C. Hart Merriam, William Brewster and other prominent ornithologists.

It is stated in *Natural Science* that the Quebec government has withdrawn the grant made to defray the cost of publishing the *Canadian Record of Science*. The Natural History Society of Montreal appeals for help to continue the journal.

SOCIETIES AND ACADEMIES.

THE NATIONAL ACADEMY OF SCIENCES.

THE Academy held its autumn session at Columbia University on Tuesday and Wednesday, November 14th and 15th, the following members being in attendance: Cleveland Abbe, George F. Barker, C. E. Beecher, A. Graham Bell, John S. Billings, Henry P. Bowditch, William H. Brewer, George J. Brush, Charles F. Chandler, Cyrus B. Comstock, Edward S. Dana, Samuel F. Emmons, Wolcott Gibbs, Arnold Hague, Charles S. Hastings, Edward S. Holden, Richmond Mayo-Smith, Albert A. Michelson, Simon Newcomb, Charles S. Peirce, Frederick W. Putnam, T. W. Richards, Ogden N. Rood, A. E. Verrill, Charles D. Walcott, E. B. Wilson, Horatio C. Wood, Robert S. Woodward and Arthur W. Wright.

At the business session Professor H. P. Bowditch presented the report of the delegates to the Wiesbaden Congress to consider the establishment of an International Scientific Association.

The scientific program was as follows:

Variations in Normal Color Vision, by Ogden N. Rood.

The Time of Perception as a Measure of Difference in Intensity; Relations of Time and Space in Vision (by invitation), by J. McKeen Cattell.

The Electro-chemical Equivalents of Copper and Silver, by Theodore William Richards.

Recent Results of the Henry Draper Memorial, by Edward C. Pickering. Read by Professor G. F. Barker.

The Statical Properties of the Atmosphere, by R. S. Woodward.

The Hydrogen Vacua of Dewar, by George F. Barker.

A Direct Proof of the Effect on the Eulerian Cycle of an Inequality in the Equatorial Moments of Inertia of the Earth, by R. S. Woodward.

The Definition of Continuity (by title); Topical Geometry, in General (by title): The Map-coloring Problem, by Charles S. Peirce.

Memoir of W. A. Rogers as a Physicist (by title), by E. W. Morley.

BIOLOGICAL SOCIETY OF WASHINGTON, 311TH MEETING, SATURDAY, NOVEMBER 4TH.

DR. L. O. HOWARD, under the title 'Preliminary Notice of an Investigation of the Insect Fauna of Human Excrement,' exhibited a series of dipterous insects reared from human excrement, and stated that having been interested in the published accounts in the medical journals of the autumn of 1898 of the supposed carriage of typhoid germs by flies in army camps, and realizing that no careful investigation of the insect fauna of human excrement had been made by entomologists, he had begun such an investigation in January, 1899. During the year many thousands of specimens of insects had been reared from fecal matter, and had been collected in privies and on excreta in the field, largely in the vicinity of Washington, but also in other parts of the country at different points, from Porto Rico to the State of Washington. Up to the present time, 138 distinct species of insects had been determined to frequent human excrement, including 77 distinct species of *Diptera*,

and 45 distinct species of insects have been reared from the excrement in which they passed their larval stages, and these include 35 distinct species of *Diptera*. Similar collections and observations have been made upon flies frequenting kitchens and dining rooms in different parts of the country. All of the material has been studied and specifically determined. The investigation will be continued and the results published next year.

Mr. Wm. H. Dall gave some informal 'Notes on Honolulu and the Hawaiian Islands,' from observations made there during a recent visit. He described the physical features of Oahu and their effects upon the climate, the characteristics of the flora and fauna of the city of Honolulu, laying particular stress upon their almost exclusively exotic character, and gave an account of the Bishop Memorial Museum, an institution reflecting the greatest credit upon the founder who endowed it, the board who have managed the investments, and the Director, Dr. W. T. Brigham, to whose energy, efficiency and wide knowledge is largely due the fact that Honolulu now has a Museum of Polynesian Ethnology and Natural History in many respects unique and which would be a credit to any city in either hemisphere.

Mr. G. K. Gilbert described the state of preservation of the celebrated 'Submerged forest of the Columbia River,' between the Dalles and the Cascades. From data connected with the geological history of the region he inferred that the submergence had taken place at least three hundred and fifty years ago. Since that time the roots of the trees, whose stumps still stand, have been continuously under water, but the upper portions of the shafts have been annually bared at low water and covered during flood. Despite this alternation of condition, which generally induces rot, the trunks are sound. The bark has disappeared, and several inches of the wood have wasted away, but what remains is firm and retains its natural color. Mr. Gilbert suggested that the continuous submergence of the roots may have operated in some way as a favorable condition, but it was the opinion of botanists present that the roots must have ceased to function immediately upon the death of the tree, and that the preservation of

the trunks was merely an extreme illustration of the durability of the wood of the species *Pseudotsuga douglasii*.

O. F. COOK,
Secretary.

THE PHILOSOPHICAL SOCIETY OF WASHINGTON.

THE 505th meeting of the Philosophical Society of Washington was held October 28th, at the Cosmos Club. Informal communications were made by Dr. Artemas Martin, on a method of extracting roots by successive subtractions and by Mr. C. K. Wead, on Museum Labels. The Director of the Geological Survey, Mr. C. D. Walcott, gave the results of his observations on a recent 'Geological Trip to Newfoundland,' and Mr. C. K. Wead described 'Some Arab Musical Scales.' The facts presented were made accessible by Land's French Translation of Al Farabi's 'Treatise on Music,' and confirmed in part by other authorities. The principal scale for the Lute was shown to be peculiarly dependent on the length of the neck of the instrument in comparison with the size of the player's hand: the five strings were tuned in fourths, and the frets were located partly by geometrical principles, and partly by bisections of distances; so ten notes were provided on each string, giving twenty-two to the octave. Later theorists reduced these numbers to seven and the much-discussed seventeen. The Modes each consisting of a selection of seven or eight of these notes were also dependent on the structure of the lute.

Some long-necked Tambours had entirely different scales tuned by the use of two strings, being built up by musical addition or subtraction of equal intervals, *i. e.*, by a step-by-step method—these scales had seven to ten notes at intervals of about half a semitone. Our current theories of the scale are utterly inapplicable to these facts.

E. D. PRESTON,
Secretary.

DISCUSSION AND CORRESPONDENCE.

THE NEED FOR A CLASSIFICATION OF PREHISTORIC IMPLEMENTS.

ABOUT a year ago Mr. A. E. Douglas, of the American Museum of Natural History, published a paper in which he urged the need of an